CITY OF SAN ANTONIO

INTERNAL AUDIT DEPARTMENT

San Antonio Public Works Department
Transportation Group Audit

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Pete M. Gonzales, Jr., CPA, CFE

Brian K. Williams, MBA, CIA, CFE, CGAP
Kimberly Weber, CIA, CFE, CGAP
Peter Stahley, CIA
Rosalia Vielma
Tanya Rodriguez

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EXECUTIVE SUMMARY

Overview

This audit was performed based on the Internal Audit Department's 2006 Citywide Risk Assessment. This assessment was conducted to identify areas of activity, organizational units, or functional processes within the City that pose high inherent risk. Public Works was found to be the highest ranked Department, in terms of risk. The main objective of this audit was to determine if Public Works Transportation Group's internal controls over performance measurement, traffic signals management, and Texas Department of Transportation (TxDOT) billings were adequate.

This report includes background information to assist the reader in understanding Transportation Group processes. The body of the report consists of observations and recommendations and is divided into three sections; Service Level Agreements (SLAs), Signal Follow up Studies, and TxDOT Reimbursements.

Results In Brief

The Transportation Group's internal controls for performance measurement, traffic signals management, and TxDOT billings should be strengthened. This audit has identified opportunities to better assess accountability, modernize processes, enhance controls, improve performance, maximize revenues, and reduce the risk of liability to the City.

Our recommendations are summarized below. We commend the Transportation Group for having initiated action to address some of these recommendations. The Internal Audit Department believes the City Manager should:

Direct Information Technology Services Department (ITSD) to assist Public Works in identifying and correcting data integrity issues associated with the TSPW and Dashboard systems. Also, direct Public Works to periodically reconcile TSPW and Dashboard data. (Recommendation A.1, Page 6)

Direct appropriate staff to formally monitor performance measures on an ongoing basis. Appropriate action should be taken to identify and address root causes, when shortfalls are noted. Additionally, the City Manager should direct ITSD to assist Public Works in automating the process of service request notification. (Recommendation A.2, Page 7)

Direct Public Works to: 1) perform follow up engineering studies of roadway, traffic, and other conditions for the City's traffic control devices, including "unwarranted" locations, and 2) consult with the appropriate City Officials to determine if such devices should be removed according to Texas Manual on Uniform Traffic Control Devices (MUTCD) criteria. The results of the studies and any subsequent actions should be formally reported. (Recommendation B.1, Page 8)

Reassess existing staffing levels to ensure adequate coverage for operating and maintaining traffic control devices. (Recommendation B.2, Page 8)

Direct the appropriate City Departments to assist Public Works in developing an indirect cost rate proposal that is specific to the Transportation Group, including all relevant costs. Also, determine the appropriate City rates for health and fringe benefit costs for billing purposes. Instead of using Federal Emergency Management Agency (FEMA) rates, analyze equipment rates to determine if they are congruent with current market rates, as allowed by Office of Management Budget (OMB) Circular A-87. (Recommendation C.1, Page 10)

Direct ITSD to assist Public Works in automating the work order system and billing process. Until a more automated solution can be developed, additional employees should be trained and made available to assist in the billing process. Also, when work order data is corrected during the billing process, all corrections should be noted on the original work orders to ensure consistency. (Recommendation C.2, Page 10)

Consult with the City Attorney's Office to determine alternatives for recouping (or preventing) lost revenues from untimely TxDOT payments. This effort may include amending the City's contract with TxDOT to include a provision for assessing penalties for late payments in order to encourage timely reimbursements. (Recommendation C.3, Page 10)

Background

San Antonio's demand for roadway travel continues to grow as the City's population and multi-car families increase. Traffic control devices, such as signs, signals, pavement markings, and other devices placed along highways and streets, facilitate the movement of vehicles and pedestrians safely and efficiently. Management of these devices is regulated by the United States Department of Transportation Federal Highway Administration (FHWA) and TxDOT.

Transportation Group

The Public Works Transportation Group is responsible for planning, designing, constructing, operating, and maintaining traffic control devices within the City limits. The Transportation Group is comprised of three operational divisions:

- Traffic Operations: responsible for installing and maintaining traffic control devices.
- Traffic Engineering: responsible for engineering studies associated with, traffic impact analysis, traffic counts, traffic studies, and visual obstructions. This division also handles sidewalk and lane closures, temporary parking permits, and bicycle facility management.
- Neighborhood Traffic: responsible for all traffic issues and studies that affect the City's residential areas.

TxDOT Agreements

The Transportation Group receives reimbursements from TxDOT for costs associated with installing and maintaining traffic control devices on State roadways. According to this agreement, the State reimburses the City for properly supported costs incurred for labor, equipment use, materials, supplies, travel expenses, and warehouse or material handling charges. The City is also required to comply with the cost principles established in the Office of Management and Budget (OMB) Circular A-87, "Cost Principles for State and Local Governments." Although most City maintenance projects are handled on an ad hoc basis (approximately 22,000 to 26,000 work orders generated per year), signal installations are presented to City Council for approval in the Annual Signal Program. Usually there are four to eight projects planned a year, costs range from $124,000 to $129,000 per traffic signal installation.

Tracking System Public Works (TSPW)

The TSPW system is a legacy mainframe application implemented by the ITSD for all Public Works services. The Transportation Group uses the TSPW system for recording and tracking work orders associated with traffic related maintenance, installations, and customer requests. Information from the TSPW system is uploaded to the Dashboard system on a daily basis.

City Service Report Card – COSA Dashboard System (Dashboard)

The Dashboard is a City Intranet system that displays service level agreement (SLA) performance information for Public Works, Environmental Services, Code Compliance, and Animal Control. Dashboard uses SAP's Business Warehouse to analyze service requests received by 311/Customer Service and other City call-takers. It also analyzes how the City responds to citizens and Council members who ask for a call-back when a service has been completed.

Objectives

The objectives of this audit were to determine if:

- Customer requests regarding traffic control devices were responded to and resolved in compliance with internal performance goals.
- Follow up studies are conducted for unwarranted (not recommended) traffic signals.
- The Transportation Group is maximizing entitled reimbursements from TxDOT agreements as they pertain to traffic control devices.

Scope

The scope of this audit included all planned and currently installed traffic signals within the City. The scope as it relates to TxDOT reimbursements was October 1, 2004 through December 31, 2006, and the scope or performance data evaluation was calendar year (CY) 2006.

Criteria
This audit was based on the Texas Department of Transportation's (TxDOT) *Texas Manual on Uniform Traffic Control Devices (MUTCD)*; the Institute of Transportation Engineers' (ITE) publication on *Traffic Control System Operations, Installation, Management, and Maintenance,* the U.S. Office of Management and Budget (OMB) Circular A-133 *Audits of States, Local Governments, and Non-Profit Organizations,* Circular A-87 *Cost Principles for State, Local, and Indian Tribal Governments,* and Public Works Policies & Procedures.

Methodology
The audit methodology consisted of collecting information and documentation, conducting interviews with Public Works management and staff, observing facilities and processes, performing selected tests and other procedures, and analyzing and evaluating the results of tests performed.

The audit was performed in compliance with generally accepted government auditing standards issued by the U.S. Government Accountability Office (GAO).

Conclusion
Internal controls relating to SLAs, "unwarranted" traffic signals, and TxDOT agreements should be strengthened to ensure that the Departments goals are met. The following observations were made during the course of the audit:

- Inadequate internal controls for data reliability have resulted in discrepancies found in the TSPW and Dashboard systems. Specifically, there are no formal procedures in place to appropriately track, monitor, or resolve miscoded service requests in TSPW. Also, there are delays in closing work orders in TSPW created by process inefficiencies. The Dashboard system was also determined unreliable due to conflicting data flowing in from the TSPW system.

- Information in the TSPW showed that the Transportation Group did not meet its performance goals during calendar year 2006 for resolving traffic signal related requests. Specifically, 2006 SLAs were not met for Traffic Signal New Requests, Traffic Signal Removals, Traffic Study Requests, Signal Malfunctions, and Signal Equipment Damages.

- Follow-up studies are not conducted to determine if "unwarranted" (not recommended by City Engineers) signals are adversely affecting traffic flow and/or safety.

- Staffing levels for traffic engineers tasked with maintaining traffic signals are below Institute of Transportation Engineers (ITE) suggested standards. Currently, there is only one engineer dedicated to fieldwork for approximately 1,200 signals within the City. According to ITE standards, it is estimated that one traffic engineer is required to properly operate and maintain every 75 to 100 signals.

- The City is not fully charging (billing) for all entitled project costs associated with the installation and maintenance of traffic signal devices on TxDOT owned roadways within the City. The Transportation Group has been undercharging TxDOT by not billing for warehouse and material handling fees, all allowable components for fringe/health benefits, and by using Federal Emergency Management Agency (FEMA) rates for equipment, instead of current market rates.

- Weak internal controls over the process for billing TxDOT have resulted in a process that is unreasonably susceptible to errors, including unsupported reimbursement costs. Several billing process and cost errors were found in all four agreements reviewed.

- The Transportation Group is not receiving payments (reimbursement of funds spent) from TxDOT within the contractually stipulated 30-day period.

DETAILED OBSERVATIONS AND RECOMMENDATIONS

A. Service Level Agreements (SLAs)

The Transportation Group establishes completion goals for each type of job performed. These goals are commonly referred to as service level agreements (SLAs)

A.1 Unreliable Performance Data in TSPW and Dashboard

Observation – TSPW
Inadequate internal controls for data reliability have resulted in constant timing discrepancies between TSPW data and actual work performed. Specifically, there are no formal procedures in place to properly track, monitor, or resolve service requests that are miscoded by call-takers. These miscodings create time delays in service in addition to creating timing discrepancies in TSPW.

Also, there is no process in place to ensure that work orders are properly closed out in the TSPW system. For non-critical calls, one employee is primarily responsible for closing out service requests in the system. A backlog of requests waiting to be closed is created when this employee is absent or experiences excessive workload. This backlog adversely affects the accuracy of performance data, because time is counted on traffic requests until they are closed out, even though the underlying work has been completed.

Currently, TSPW doesn't record the actual time-of-day that a work order is closed out in the system. Once a record is closed, the TSPW time-stamps the request with a close out time of 12-noon regardless of the time-of-day the request is actually closed. This creates material performance errors for services that have shorter time goals, such as Signal Malfunctions which has a 24-hour SLA goal.

Observation – Dashboard
Audit testing identified discrepancies in data between the TSPW and Dashboard (City Services Report Card) systems for calendar year 2006. **Exhibit A** shows the discrepancies found in the total number of service requests (by code type) received for 2006.

Exhibit A - Total Requests Received by Request Type for CY 2006

Description	TSPW Code	As Reflected in Dashboard	As Reflected in TSPW	Difference
Traffic Signal New Request	206	161	228	67
Traffic Signal Removal	211	2	2	0
Traffic Study Request	240	1,596	1,598	2
Signal Malfunction	292	5,950	5,951	1
Signal Equipment Damaged	294	6	6	0

Exhibit B below shows the differences that were identified between systems for service requests that met their respective SLA time completion goal.

Exhibit B - Total Requests Meeting SLA Time Completion Goal for CY 2006

Description	TSPW Code	As Reflected in Dashboard	As Reflected in TSPW	Difference
Traffic Signal New Request	206	118	150	32
Traffic Signal Removal	211	1	1	0
Traffic Study Request	240	1,247	1,153	94
Signal Malfunction	292	5,775	5,422	353
Signal Equipment Damaged	294	3	3	0

Exhibit C shows that the Dashboard system reflects a higher percentage of goal achievement than the TSWP system based on each system's respective data.

Exhibit C - Average Percent Requests within SLA

Description	TSPW Code	Dashboard	TSPW	Absolute Difference
Traffic Signal New Request	206	77%	70%	7%
Traffic Signal Removal	211	50%	50%	0%
Traffic Study Request	240	76%	70%	6%
Signal Malfunction	292	97%	91%	6%
Signal Equipment Damaged	294	50%	50%	0%

Risk
Inadequate data integrity controls have resulted in inaccurate information being reported to City Council and City management.

Recommendations
The City Manager should direct Information Technology Services Department (ITSD) to assist Public Works in identifying and correcting data integrity issues associated with the TSPW and Dashboard systems. The City Manager should also direct Public Works to periodically reconcile TSPW and Dashboard data.

A.2 SLAs Not Being Met, According to TSPW

Observation
According to TSPW data, the Transportation Group did not meet its performance goals during calendar year 2006 for resolving traffic signal related requests.

Public Works' official performance measure for their SLAs is, "Percentage of Service Requests Meeting SLAs with Customers." Although the Transportation Group has not established any internal percentage completion goals, Public Works' overall departmental performance goal is to meet SLAs at least 92 percent of the time. However, actual performance for the jobs tested was much lower than the overall departmental goal, according to TSPW data as shown in **Exhibit D** on page 7.

Exhibit D - Transportation Group Critical SLAs and Performance Results per TSPW Data

Description	TSPW Code	Completion Goal	CY-2006 SLA Performance
Traffic Signal New Request	206	120 workdays	66%
Traffic Signal Removal	211	120 workdays	50%
Traffic Study Request	240	90 workdays	72%
Signal Malfunction	292	1 day (24 hours)	91%
Signal Equipment Damaged	294	5 days	50%

Source: Public Works Traffic Operations

Factors that affect performance include TSPW data reliability (see observation A.2). Currently, certain service requests from the TSPW system are printed and subsequently bin-mailed rather than electronically routed to various designated staff for action. This archaic process could result in unnecessary delays of up to several days.

Risk

The Transportation group may not be meeting the Department's mission of achieving customer satisfaction, as it pertains to efficiency of service delivery.

Recommendations

The City Manager should direct appropriate staff to formally monitor performance measures on an ongoing basis. Appropriate action should be taken to identify and address root causes, when shortfalls are noted. Additionally, the City Manager should direct ITSD to assist Public Works in automating the process of service request notification.

B. Signal Follow up Studies

B.1 Follow-up Studies Not Conducted for Unwarranted or Existing Signals

Observations
Although the Transportation Group provides formal reports to the City Council for signals that are not recommended by engineer studies, there are no follow-up studies conducted to determine if these signals have any affect on traffic flow or safety. Likewise, follow-up studies are not conducted on any of the City's existing signals to determine if alternatives are needed due to changes in traffic flow. The *Texas Manual on Uniform Traffic Control Devices (*MUTCD*)* and City Charter provide provisions for considering the erection, removal, or change of any of traffic-control device resulting from follow up studies, which include notifying the public and determining alternative signage.

Risk
Unnecessary traffic control signals may adversely affect the safety and efficiency of vehicular, bicycle, and pedestrian traffic.

Recommendations
The City Manager should direct Public Works to: 1) perform follow up engineering studies of roadway, traffic, and other conditions for the City's traffic control devices, including "unwarranted" locations, and 2) consult with the appropriate City Officials to determine if such devices should be removed according to Texas Manual on Uniform Traffic Control Devices (MUTCD) criteria. The results of the studies and any subsequent actions should be formally reported.

B.2 Inadequate Staffing Levels

Observation
Staffing levels for traffic engineers tasked with maintaining traffic signals are below **Institute of Traffic Engineers** (ITE) suggested standards.

Currently, there is only one engineer dedicated to fieldwork for approximately 1,200 signals that the City of San Antonio maintains. According to ITE's *Traffic Control System Operations, Installation, Management, and Maintenance* publication, it is estimated that it takes one traffic engineer to properly operate and maintain every 75 to 100 signals. The Traffic Management's full-time employee (FTE) budget currently consists of one Engineer Manager, one Senior Engineer, one Engineer Associate, and three Technician positions (two are vacant). However, only one Senior Engineer is available for actual traffic fieldwork, which includes performing the following:

- Traffic signal and intersection related design
- Traffic studies
- Operations timing
- Responding to citizen complaints and City Council inquiries
- Attending public meetings

Risk
Lack of engineering staff dedicated to operating and maintaining traffic control devices adversely affects the efforts for meeting performance goals (SLAs). Moreover, this under staffing may impact public safety and the overall quality of studies performed by the traffic engineer(s).

Recommendation
The City Manager should reassess existing staffing levels for Public Works to ensure adequate coverage for operating and maintaining traffic control devices.

C. TxDOT Reimbursements

C.1 Undercharging for Work Performed

Observation
The City did not bill TxDOT for all entitled costs incurred to install and maintain traffic signal devices on State roads within the City. The Transportation Group did not bill TxDOT for warehouse and material handling fees (indirect costs), all allowable components of fringe/health benefits (labor costs), and used (outdated) Federal Emergency Management Agency (FEMA) rates for equipment (material costs), instead of current market (replacement costs).

Specifically, the Transportation Group has:

- Not prepared and submitted a City approved indirect cost rate (proposal) to TxDOT.
- Used the same billing rates for fringe and health benefit costs for the past four to five years.
- Used FEMA billing rates for equipment costs, without first performing analysis to determine if the equipment costs used are current (competitive) market costs, as allowed by Office of Management Budget (OMB) Circular A-87.

Risk
The City is not recouping all allowable costs incurred for installing and maintaining traffic-control devices on State roadways.

Recommendations
The City Manager should direct the appropriate City Departments to assist Public Works in developing an indirect cost rate proposal that is specific to the Transportation Group, including all relevant costs. Also, determine the appropriate City rates for health and fringe benefit costs for billing purposes. Instead of relying solely on FEMA, analyze equipment costs to determine if they are congruent with current market, as allowed by OMB Circular A-87.

C.2 Inadequate Internal Controls over Billing Process

Observation
Weak internal controls over the TxDOT billing process have resulted in a process that is unreasonably susceptible to errors, including unsupported reimbursement costs. According to the TxDOT contractual agreement, the State will reimburse the City for "properly supported" costs. However, several billing process and cost errors were found in all four agreements reviewed of the 25 active TxDOT agreements.

The following are examples of errors identified during our audit:

- Line Item Billing Statement Cost Errors:
  - Costs for the wrong employee were billed.
  - Material and equipment costs on work orders were not billed.
  - Incorrect labor costs (hours) were billed.
  - Billing did not include the correct fringe and health benefit calculations.
  - Equipment and labor costs were billed, but not supported on underlying work orders.

- Billing Statement/Work Order Process Errors:
  - Typographical and math errors were made on work orders.
  - Work orders did not support material costs.
  - Supervisors signed off work orders that contained errors.
  - After work order data entry mistakes were identified by a supervisor, the work orders still were not corrected.

The current billing process relies heavily on hard copy hand-written work order data that is completed by technicians, and then manually entered into a Microsoft Access database. Based on database queries, costs are compiled and manually recorded into a Microsoft Excel spreadsheet. The spreadsheet is then attached to the billing statement and sent to TxDOT.

A Senior Electronic Technician is required to perform the billing process. The accuracy of the billing statements relies heavily on this employee's ability to detect errors, edit hand-written work order data, and then make proper adjustments on billing statements.

Risk

Without properly supported costs and accurate billing statements, current and future State and Federal funding (reimbursements) may be jeopardized.

Recommendations

The City Manager should direct ITSD to assist Public Works in automating the work order system and billing process. This automated process should facilitate controls for: 1) assigning a single work order number to track all costs, 2) ensuring the accuracy of data input (use of pre-populated drop-down boxes, tables, range checks, signage, etc.), 3) eliminating of the need to have to enter the same data multiple times (e.g. Date, Work Order #, Vehicles, Personnel I.D., Model/Part Numbers, etc.), 4) producing a detailed summary of all project costs, and 5) printing a final billing statement.

Until a more automated solution can be developed, additional employees should be trained and made available to assist in the billing process. Also, when work order data is corrected during the billing process, all corrections should be noted on the original work orders to ensure consistency.

C.3 Not Encouraging Timely TxDOT Payments

Observation

The Transportation Group is not receiving payments or costs incurred from TxDOT within the contractually stipulated 30-day period. At least five late payments were examined that averaged more than 92 days and totaled over $183 K. According to the City's contract with TxDOT, "the State shall make payment to the City within thirty (30) days from receipt of the City's request for payment provided that the request is properly prepared, executed, and documented." The Public Works has not established or implemented a formal collection process to collect late payments due from TxDOT.

Risk

The City is not earning potential interest revenue and incurring increased opportunity costs associated with late TxDOT payments.

Recommendation

The City Manager should consult with the City Attorney's Office to determine alternatives for recouping (or preventing) lost revenues from untimely TxDOT payments. This effort may include amending the City's contract with TxDOT to include a provision for assessing penalties for late payments in order to encourage timely reimbursements.